

*This application is a LOADED ANTENNA continuation of PCT/EP01/11914, filed 10/16/2001.*

## OBJECT OF THE INVENTION

5

The present invention relates to a novel loaded antenna which operates simultaneously at several bands and featuring a smaller size with respect to prior art antennas.

10 The radiating element of the novel loaded antenna consists on two different parts: a conducting surface with a polygonal, space-filling or multilevel shape; and a loading structure consisting on a set of strips connected to said first conducting surface.

15 The invention refers to a new type of loaded antenna which is mainly suitable for mobile communications or in general to any other application where the integration of telecom systems or applications in a single small antenna is important.

20

## BACKGROUND OF THE INVENTION

The growth of the telecommunication sector, and in particular, the expansion of personal mobile communication systems are driving the engineering efforts to develop multiservice (multifrequency) and compact systems which require multifrequency and small antennas. Therefore, the use of a multisystem small antenna with a multiband and/or wideband performance, which provides coverage of the maximum number of services, is nowadays of notable interest since it permits telecom operators to reduce their costs and to minimize the environmental impact.

25

30